We happened to want to see what the author had to say about the partridge, and naturally turned to the letter P, where no such name occurs. At last we find the bird, together with several other species, under the entry "Common," which, to say the least, is absurd. In fact, the prefix of "common" to *the* partridge is not required at all.

R. L.

ADMIRALTY REORGANISATION.

THE official memoranda published by the First Lord of the Admiralty on January 8 are of great interest, but that relating to the Naval War Staff is of much greater importance than the other two. Mr. Churchill discusses at considerable, if not unnecessary, length the distinctions which he believes to exist between "naval and military problems," apparently considering it necessary to justify differences of organisation which will be found at the Admiralty and at the War Office when the new scheme has been developed. The First Lord is an able and forcible writer, who might be expected to state his case well, but it may be questioned if it would not have served his purpose better and have given a clearer understanding of the subject to the public if his memorandum on the Naval War Staff had been less diffuse. The fact is admitted by him that "during the course of years all or nearly all the elements of a War Staff at the Admiralty have been successively evolved in the working of everyday affairs." The edifice is now to be completed and crowned by combining "these elements into an harmonious and effective organisation." It is proposed "to invest the new body with a significance and influence which it has not hitherto possessed, and to place it in its proper relation to existing powers." This is obviously both wise and necessary action; but it is scarcely to be described as such a radical change as some persons have asserted.

In the current Navy Estimates provision is made for a Naval Intelligence Department and a Naval Mobilisation Department, each under a naval director (rear-admiral or captain), the former department including twenty-one naval officers and thirteen civilians, the latter six naval officers and four civilians. The total cost of these departments is about 22,000*l.* per annum. Both departments are placed under the First Sea Lord, and their duties are sufficiently indicated by their names. In the new scheme they will continue in existence, and a third section is to be added, to be known as the "Operations Division," and to be placed under a director. All three sections are to be combined together under a chief of the staff, who is to be "a flag officer, primarily responsible to the First Sea Lord, and working under him as his principal assistant and agent." "Constant, free, and informal intercourse between [the three sections] is indispensable"; and it is laid down that each of the directors is "to be kept fully acquainted with the work of their two colleagues."

All this is admirable, but the principles involved are in no sense novelties at the Admiralty; nor is it conceivable that the consideration of "war plans"—which is stated to be the special business of the new section—has not been practised at the Admiralty hitherto. Long-continued peace has tended to drive somewhat into the background the primary importance of a scientific study of operations and preparation of "plans of campaign," but it is well known that the great shipbuilding programmes which have been carried out during the last twenty-five years have been based—as they ought to have been—on strategical plans prepared by the Admiralty for the naval defence of the British Empire, its commerce and communications. While this is true, it is equally true that the enormous increase of the Royal Navy, the growth of rival war fleets, and the present complex conditions of naval warfare, have all emphasised the need for greater attention and closer study of the subject by competent persons. Consequently there can only be universal and hearty welcome of the endeavour now made to meet the pressing necessity by the development of an advisory War Staff at the Admiralty.

NOTES.

M. LIPPMANN has been elected president of the Paris Academy of Sciences for the present year, and Prof. Guyon vice-president.

THE Academy of Sciences of the Royal Institute of Bologna has awarded the Élie de Cyon prize of 3000 lire for 1911 to Prof. E. A. Schäfer, F.R.S., of Edinburgh, for his work on the ductless glands, and especially for his recent work on the pituitary body

IT is proposed to establish in Dartmouth a permanent memorial to Thomas Newcomen, known for his work in connection with the steam engine, who was born in that town in 1663. A meeting of persons interested in the matter was held yesterday in the Dartmouth Guildhall. The Mayor of Dartmouth, Mr. Charles Peek, and Mr. T. F. Caston, the honorary secretary to the Newcomen Memorial Committee, will welcome suggestions as to the best manner of perpetuating the memory of the inventor and his invention, and be glad to receive contributions.

THE council of the Royal Sanitary Institute offers the Henry Saxon Snell prize for competition this year. The prize was founded to encourage improvements in the construction or adaptation of sanitary appliances, and is to be awarded by the council at intervals of three years, the funds being provided by the legacy left by the late Henry Saxon Snell. The prize will consist of fifty guineas and the silver medal of the institute, and is offered for an essay on "Suggestions for Improvements in the Ventilating, Lighting, Heating, and Water Supply Appliances and Fittings for an Operating Room and its Accessory Rooms for a General Hospital of 400 Beds (no Students)."

AN influential body of gentlemen interested in the preservation of our local antiquities has presented a memorial to the committee now engaged in considering schemes for the future utilisation of the Crystal Palace and its grounds, suggesting the establishment of a National Folk Museum. The nearest parallel to the proposed institution is the Northern Museum at Stockholm, with its offshoot the Open Air Museum at Skansen. The scheme suggests the erection in the Palace grounds of a series of typical ancient houses, each provided with appropriate gardens and furniture, and an open-air amphitheatre for pageants, folksongs, and dances. Part of the main building of the Palace might, the memorialists suggest, be devoted to exhibits of domestic art products, toys and games, a folklore room, a museum relating to the Royal House, and other exhibits illustrating the origin and evolution of the various departments of national culture. Something of the kind has been attempted in the Pitt Rivers Museum at Oxford, and the educational value of the culture series arranged by Mr. H. Balfour supplies good evidence in support of the present proposals. The domestic appliances of past times are now disappearing so rapidly that unless active steps are taken at once it will soon be impossible to supply the exhibits needed for a folk museum such as that now suggested.

By the death of M. Radau on December 22, 1911, as already announced in these columns, France has lost a mathematical astronomer of real distinction. Born on January 22, 1835, at Angerburg, in Prussia, he was a student at Königsberg between 1854 and 1857. The following year he went to Paris, where he became naturalised, and passed the remainder of his life. For many years he acted as secretary to M. Brunetière on the staff of the *Revue des Deux Mondes.* At no time does he seem to have held an official post as a practical astronomer or as a teacher of astronomy. Yet he contributed a very large number of valuable memoirs, for the most part having a direct bearing on theoretical astronomy. Perhaps, as a result of his unofficial position, the greater number of these contributions are not of great length, but in spite of his early training all of them show a freshness of thought and an elegance characteristically French. Among them may be specially mentioned an essay on astronomical refraction, in which the effect of the humidity of the atmosphere is for the first time considered; a very important memoir on the planetary inequalities of the moon, the results of which have been confirmed by Dr. Cowell's analysis of the Greenwich observations (Annals of the Paris Observatory, 1889 and 1893); and memoirs on theoretical dynamics and on interpolation in the Annals of the École Normale and in Liouville's Journal. M. Radau was an editor of the *Bulletin Astronomique* from its inception in 1884, and contributed many elegant notes to its pages. He was also a prolific writer of popular articles, for which he had a marked gift. M. Radau succeeded Tisserand as a member of the Institute in 1897; he was a member of the Bureau des Longitudes, and he was elected an associate of the Royal Astronomical Society so lately as 1905.

DR. SOPHIA JEX-BLAKE, one of the pioneers of the medical education of women, has just died, in her seventy-second year, at her home in Sussex. Dr. Jex-Blake was the youngest daughter of Thomas Jex-Blake, Proctor of Doctors Commons, and was born at Hastings in 1840, where her childhood was passed. As a girl she desired to spend her life in educational work, and at the age of eighteen filled the post of mathematical tutor at Queen's College, London, a post she held for three years. At this time she decided to travel in order to study different methods of education. Whilst in America for this purpose she met Dr. Elizabeth Blackwell, and being impressed with the interest of medicine as a career for women, and the need for medical women to attend those women who desired treatment by one of their own sex, she began to study medicine in Boston, U.S.A. Miss Jex-Blake returned to England in 1868, and finding it impossible to get teaching in London, she and four other women who had joined her went to Edinburgh, where, after some difficulty, certain classes were opened to them for study, but they were debarred from presenting themselves for any qualifying examinations. After much time had been spent and money lost in litigation, though many warm friends had been made, Dr. Jex-Blake came to London, where she soon gathered together a band of sympathisers, among whom were Mr. Garrett Anderson, the late Sir William Broadbent, Prof. Burdon Sanderson, and others, and the London School of Medicine for Women was formed. The school was opened in 1874 with fourteen students, but it was not until 1877 that a qualification could be obtained, when, thanks to the Kings and Queens College of Physicians, now the Royal College of Physicians, Ireland, their examinations were thrown open to women, and qualification and registration were at last able to be obtained. Dr. Jex-Blake subsequently returned to Edinburgh, where she practised for twenty-one years. During that time she opened a dispensary for women and children and a cottage hospital, and in 1886 founded a School of Medicine for Women, which in 1894 was recognised by the University of Edinburgh for the purposes of graduation. For the past twelve years Dr. Jex-Blake lived at her country home in Sussex, where she took great interest in her fruit and flowers. She will always be remembered by those who knew her personally for her charm of voice and her powers of organisation.

DR. W. B. KEMSHEAD, who died at the Charterhouse on January 3, at eighty years of age, was for a number of years science master at Dulwich College. He devoted much of his time to scientific research, and for some years endeavoured to produce a metal which would resist corrosion, for use in the manufacture of miners' lamps.

ON Tuesday next, January 16, Prof. W. Bateson will begin a course of six lectures at the Royal Institution on "The Study of Genetics"; on Thursday, January 18, Prof. A. W. Bickerton will begin a course of two lectures on "The New Astronomy"; and on Saturday, January 20, the Rev. John Roscoe will commence a course of two lectures on "The Banyoro: a Pastoral People of Uganda" —(1) "The Milk Customs"; (2) "Birth and Death Customs." The Friday evening discourse on January 19 will be delivered by Sir James Dewar on "Heat Problems," and on January 26 by Prof. Bertram Hopkinson on "The Pressure of a Blow."

THE following awards of medals and premiums, December, 1911, have been made by the Institution of Mining and Metallurgy, and will be presented at the annual meeting in March:—Gold medal of the institution (two awards): (*a*) to Mr. E. P. Mathewson, Arizona, U.S.A., in recognition of his eminent services in the advancement of metallurgy generally, and especially in regard to copper; (*b*) to Mr. Walter McDermott, in recognition of his special services in the equipment of the Bessemer Laboratory of the Royal School of Mines, and as the representative of the institution on the board of governors of the Imperial College of Science and Technology during the period of its establishment and organisation, and to signalise his services in the advancement of metallurgical practice. "The Consolidated Gold Fields of South Africa, Ltd.," gold medal to Mr. Walford R. Dowling, for his paper on the amalgamation of gold in banket ore. "The Consolidated Gold Fields of South Africa, Ltd.," premium of forty guineas to Mr. A. M. Finlayson, for his paper on secondary enrichment in the copper deposits of Huelva, Spain. "William Frecheville" students' prize of ten guineas to Mr. F. Percy Rolfe, for his paper on shrinkage stoping in Western Australia. "Arthur Claudet" students' prize of ten guineas to Mr. Arthur C. Hoare, for his paper on the roasting of complex ores in gold assaying.

THE seventeenth International Medical Congress is to be held in London from August 6 to August 12, 1913, inclusive. We learn from *The Lancet* that the King has given his patronage, and it is expected that a detailed programme will be issued not later than September 30 next. The officers of the congress are as follows:—***President,*** Sir Thomas Barlow, F.R.S.; ***vice-presidents,*** Sir W. S. Church, Bt., K.C.B., Sir Jonathan Hutchinson, F.R.S., Lord Lister, O.M., F.R.S., Prof. James Little, Sir R. Douglas Powell, Bt., K.C.V.O., Sir Frederick Treves, Bt., G.C.V.O., Sir William Turner, K.C.B., F.R.S., and Sir Hermann Weber; ***treasurers,*** Sir Dyce Duckworth, Bt., and Mr. G. H. Makins, C.B.; ***chairman*** *of executive committee,* Sir Alfred Pearce Gould, K.C.V.O.; *honorary general secretary,* Dr. W. P. Herringham. The presidents of sections are as follows:—(i) Anatomy and embryology, Prof. Arthur Thomson. (ii) Physiology, Prof. E. A. Schäfer, F.R.S. (iii) General pathology and pathological anatomy, Mr. S. G. Shattock; Subsection, chemical pathology, Dr. F. Gowland Hopkins, F.R.S. (iv) Bacteriology and immunity, Prof. G. Sims Woodhead. (v) Therapeutics (pharmacology, physiotherapy, balneology), Sir Lauder Brunton, Bt., F.R.S. (vi) Medicine, Sir William Osler, Bt., F.R.S. (vii) Surgery, Sir William Watson Cheyne, Bt., C.B., F.R.S.; Subsection A, orthopædics, Mr. Robert Jones; Subsection B, anæsthesia, general and local, Dr. Dudley W. Buxton. (viii) Obstetrics and gynæcology, Sir Francis H. Champneys, Bt. (ix) Ophthalmology, Sir Henry Swanzy. (x) Diseases of children, Dr. Eustace Smith. (xi) Neuropathology, Sir David Ferrier, F.R.S. (xii) Psychiatry, Sir James Crichton-Browne, F.R.S. (xiii) Dermatology and syphilography, Sir Malcolm Morris, K.C.V.O. (xiv) Urology, Prof. E. Hurry Fenwick. (xv) Rhinology and laryngology, Prof. St. Clair Thomson. (xvi) Otology, Mr. Arthur Cheatle. (xvii) Stomatology, Mr. Morton A. Smale. (xviii) Hygiene and preventive medicine, Dr. Arthur Newsholme. (xix) Forensic medicine, Prof. Harvey Littlejohn. (xx) Naval and military medicine, Sir James Porter, Bt., K.C.B. (xxi) Tropical medicine, Sir David Bruce, C.B., F.R.S. (xxii) Radiology, Sir J. Mackenzie Davidson.

To the current issue of *The Popular Science Monthly* Prof. W. E. Ritter, scientific director of the San Diego Marine Biological Station, contributes an article dealing with the duties to the public of research institutes in pure science. He urges that an institution of pure science should be one the primary aim of which is to extend the bounds of man's knowledge of nature in a specified field, and to show something of the significance of the new knowledge for the higher life of mankind. Not only, he insists, must research institutes add to knowledge, but they must show "in language comprehensible to the generally but non-technically educated members of the community something of the meaning of this knowledge for human beings in both the physical and the spiritual aspects of their natures." Prof. Ritter's view is that research institutions, as institutions, ought to hold themselves obliged, from time to time, to give out in a form readily accessible to and comprehensible by the rank and file the results of their most significant achievements. So far as work accomplished in biology is concerned, this popular instruction, it is urged, should be given by professed biologists constantly occupied with the first-hand gathering of data, with the making and testing of hypotheses, and with the submitting of results to fellow-workers for criticism and verification.

In "A First Study of Inheritance in Epilepsy" (Eugenics Record Office, Bulletin No. 4, Cold Spring Harbor, N.Y., November, 1911) Prof. Davenport and Dr. David Weeks discuss an important collection of material bearing on this point. The data consist of the pedigrees of inmates of the New Jersey State Village for Epileptics at Skillman, N.J., obtained at the cost of much care and labour by visiting the homes of the patients and interviewing their parents or other relatives and physicians. The authors conclude that epilepsy and feeble-mindedness behave as Mendelian recessive characters, and state: "it appears, consequently, that when both parents are epileptic, both feeble-minded, or one epileptic and the other feeble-minded, all the offspring will be either epileptic or feeble-minded." We note, however, that in a table facing the page on which this statement is made a mating is recorded in which the two children of a feeble-minded father and an epileptic mother are both normal. Another conclusion is worthy of special reference, namely, that "provided marriage matings continue as at present and no additional restraint is imposed, the proportion of epileptics in New Jersey would double every thirty years."

To the Journal of the Ipswich Field Club for October, 1911, Mr. Alfred Bell contributes an article on the zones of the East Anglian Crags, in the course of which a number of the molluscs are described as new. The Coralline Crag is divided into a Gedgravian and a Boytonian zone, of which the latter forms a transition into the overlying Waltonian of the Red Crag. Lists of the faunas of the Boytonian zone and of the so-called box-stones are given. The author disputes the opinion that the majority of the mammalian remains are older than the Crag itself, but considers that the cetacean remains, more especially those of beaked whales, form an exception in this respect. It is difficult to see the force of this, as all the Crag cetaceans are essentially of a modern type.

When the modern type of shorthorn cattle was produced by careful crossing and selection, no attention was paid to the superficial character of colour, so that in this respect the breed is mongrel, and in consequence it is a general belief that the colour of the progeny of any particular pair cannot be predicted with anything approaching certainty. Consequently, the inheritance of coat-colour among shorthorns forms a problem of great difficulty. It has, however, been taken up by Mr. H. H. Laughlin, of the Carnegie Experimental Evolution Station at Cold Spring Harbour, and the results of his investigations are published in *The American Naturalist* for December, 1911 (vol. xlv., p. 405). These are so complex that it is impossible to give a summary within the limits of our space, although it may be noted that when white shorthorns are crossed with white park-cattle the calves are invariably white. This indicates that the white of park-cattle—although by no means all white—is dominant, park-cattle having, it is believed, formed part of the stock from which the modern shorthorn was evolved.

The extermination of the big-game fauna of German East Africa forms the leading theme in *Naturwissenschaftliche Wochenschrift* for December 17, 1911, Prof. Fritz Behn, who has recently returned from a journey in that province, devoting the whole of a long article to this subject, and Prof. C. G. Schillings supporting his arguments from his own experience. The subject is also touched upon in a third article, by Dr. F. Doflein, on sport and science in the German colonies, where emphasis is laid on the remarkable fact that the prolonged British occupation of India has not resulted in the extermination of a single indigenous species of animal. The rapidity with which the big-game fauna of German East Africa is being wiped out presents a marked contrast to the conditions obtaining in the adjacent British Protectorate, where the establishment of game-reserves, the restrictions in regard to the number of animals shot by sportsmen, and the prohibition of the export of undersized ivory, horns, and skins work wonders. In the German Protectorate the work of destruction is mainly carried on by Boers and professional hunters, and not by the casual sportsman. Unless steps are taken promptly to check the slaughter, there will ere long be no game to protect.

FROM the report of the Department of Agriculture for the Nyasaland Protectorate, it appears that the export of cotton, which in 1903 was valued at only 3*l.*, rose in 1909–10 to 26,209*l.*, and during the past season to 58,687*l.* The area under crop during the present season is 23,314 acres. This excellent result reflects great credit alike on the planters and on the Agricultural Department; but it is considered not to exhaust the possibilities, but only as an indication of what Nyasaland can do. Selection experiments with Nyasaland upland cotton have been carried out with good results, and some crossing has been done, although this method is now given up. The export of rubber also doubled and is likely to increase considerably in the near future, as the estate rubber is now approaching the age for tapping. Tobacco is proving a useful crop, while maize, coffee, and tea are grown to advantage. The velvet bean (*Mecuna Lyonii*) has been introduced by the department for green manuring purposes.

ALTHOUGH the botany of the Sikkim Himalayas is generally well known, since many botanists have added to the historic explorations of Sir Joseph Hooker, the remote Zemu and Llonakh valleys, in the north-west, are very inaccessible except by an expedition specially arranged at a favourable season, as described by Messrs. W. W. Smith and G. H. Cave, two officials of the Calcutta Botanic Gardens. Their account, published in the Records of the Botanical Survey of India (vol. iv., No. 5), furnishes some indication of the difficulties encountered, including the penetration of the Rhododendron jungle, composed of *R. Whitii*, *R. campanulatum*, and *R. Hodgsoni*, at an elevation of 10,000 feet. The Zemu valley presents a transition from the moist, prolific area in the south to the dry area of Tibetan Sikkim. It resembles the drier aspect of the Llonakh valley, which shows affinities in vegetation with Tibet, in the lack of epiphytic ferns and cryptogams. A survey of the alpine region points to the dominance of the genera Arenaria, Potentilla, Saxifraga, Saussurea, Rhododendron, Primula, and Pedicularis. Under Saxifraga thirty-four species are recognised, including a new crustaceous form resembling a Sedum.

A RECENT number of the *Bollettino* of the Italian Seismological Society contains an account of an interesting meeting of the society held at Rocca di Papa on August 30, 1910, to honour the memory of the late Prof. M. S. de Rossi, the pioneer of seismological studies in Italy. The memorial consists of a stone placed in the front of the Observatory of Rocca di Papa stating that in this his house Michele Stefano de Rossi first in Italy made systematic observations on terrestrial dynamism and published very valuable statistical data. The observations were carried on from 1874 until de Rossi's death in 1898, and are recorded in his well-known works the "Meteorologia Endogena" and the seventeen volumes of the *Bollettino del Vulcanismo Italiano.*

THE history of the numerous attempts that have been made to predict the occurrence of earthquakes is summarised in an interesting paper by Mr. G. Martinelli (*Boll. Sismol. Soc. Ital.*, vol. xv., 1911, pp. 154–90). An account is given of many phenomena which were generally supposed to precede earthquakes, such as various states of the weather, the physiological condition of observers, the position of the greater planets, and the occurrence of microseismic storms. Although we are still very far from the solution of the problem, Mr. Martinelli indicates two lines of research which may ultimately lead us in the right direction—the study of electromagnetic phenomena and of the gradual deformation of the earth's crust. Of the two methods, he considers, and no doubt rightly, that the latter is the more promising, for it is connected with the movements which are now known to be the chief cause of earthquakes.

WE have received copies of the tide tables for the eastern coasts and for the Pacific Coast of Canada for the year 1912, which are published by the Tidal and Current Survey of the Dominion of Canada. Longer series of observations are available for the eastern coast, but it is estimated that for at least three ports on the Pacific Coast—Sand Heads, Vancouver, and Port Simpson—the tables are now superior to those for any other port on the Pacific coasts.

A SCIENTIFIC expedition left Trieste at the end of October, 1911, under Dr. L. Brühl, of the Institut für Meereskunde of Berlin, for the Dead Sea and the Jordan Valley, in order to study the chemical, physical, and biological problems which this region presents, so as to extend and complete the earlier work in these directions which was done by the expeditions of Lynch in 1848 and of the Duc de Luynes in 1864. According to *Petermann's Mitteilungen*, the expedition will probably return about the end of January.

IN the October (1911) number of *La Géographie* Dr. H. Hubert discusses the thunderstorms which occur so frequently in the southern portions of the western Sudan, and furnish the larger part of its annual rainfall. He recognises two principal directions of air currents: one from the north-east, which blows persistently during the dry season, and even during the summer rainy season still prevails at an altitude of about 2000 metres; and another, the south-westerly monsoon current, which blows as a light, moist surface wind, ranging up to about 1000 metres in the summer months. A few observations are quoted to indicate the directions of the upper and lower air currents during the passage of a thunderstorm, and the general direction of their movement is given as being from east-south-east to west-north-west, with a velocity of translation of about 60 kilometres per hour. Rain due to such thunderstorms will be recorded by travellers as coming from the east, though the ordinary rains of the wet season accompany the southerly and south-westerly current of the monsoon.

WE have recently received from the Australian Central Weather Bureau a report by Mr. F. A. Hunt of his visit to Europe, Asia, and North America, undertaken by direction of the Commonwealth Government for the purpose of "discussing with other meteorologists the most modern methods of organisation and equipment." Mr. Hunt left Australia in July, 1908, and returned in March, 1909; and although three years have elapsed since some of the places were visited, and changes (especially in this country) have taken place, the reports of the various services contain much useful information and are convenient for reference. Those relating to Canada and India are very full. We are glad to see that the various proposals made by Mr. Hunt and by the Melbourne conference (held in May, 1907) have been generally approved by the Commonwealth Department for Home Affairs.

THE meteorological charts issued for the various oceans by the Weather Services of the United States, Germany, and this country for December, 1911, include interesting and useful data. The U.S. Bureau has issued separately a useful "Marine Calendar" summarising the monthly weather conditions in the North and South Atlantic Oceans. The interesting synoptic charts showing the weather in the North Atlantic for December 7–13, 1911, prepared by the Meteorological Office, explain the very unsettled weather over this country and western Europe. While on the American side of the Atlantic the distribution of pressure was anticyclonic, and the weather for the most part fair and quiet, the weather over the eastern half of the ocean remained in an exceedingly disturbed state. A summary given of the Arctic weather in the summer of 1911 from the log of the whaler *Diana* is of interest. The ship passed Cape Wrath outwards on April 24, and again homewards on November 1; she reached lat. 75° 28′, long. 75° 19′ W., on July 18. Fog was included in 25 per cent., and snow in about 20 per cent., of the weather observations. The lowest temperature recorded was 23°, on May 22. Gales were experienced in each month, especially in May and October. The north-west storm of October 30, in about 59° N., 10° W., was little short of a West India hurricane.

ACCORDING to the December (1911) number of *The Illuminating Engineer* of New York, the American illuminating engineer, after devoting his attention in the past mainly to mechanical efficiency, is now in a position to consider looks, and the question of attractive design will play a prominent part in his business in the near future. He appears to feel acutely the monopoly in electric lamps held by the National Electric Lamp Co. The relations between the gas and electric companies seem to be as strained in America as they are in this country. At the recent annual Convention of the National Commercial Gas Association there were papers read which, on the one hand, treated gas lighting as a decaying industry, and on the other claimed for it a position of recognised superiority. With such extreme statements possible, it does not appear that the question is any nearer settlement in America than it is here. The present tendency to use as the source of light a tungsten filament or an incandescent mantle, neither of which can with comfort be viewed directly, and to place them in situations in which they are not themselves visible, may lead to more trustworthy statements as to their relative merits.

IN the Proceedings of the Royal Academy of Sciences of Amsterdam (November 22, 1911, p. 370) Dr. Th. Weevers describes the isolation from the spadix of *Sauromatum venosum*, Schott., by pressing out and precipitating the press-juice with alcohol or acetone, an enzyme which decomposes dextrose with formation of carbonic and organic acids, but without any production of alcohol. The decomposition occurs equally well in an atmosphere of either air or hydrogen. The action of the enzyme is in some respects, especially as regards the formation of acids, reminiscent of that of certain fungi and of the nocturnal production of acids by Crassulaceæ. The acid formed is non-volatile with steam, and is therefore not formic, acetic, propionic, or a higher fatty acid; judging by microchemical tests, citric acid is formed, and in one instance malic acid was detected. Other acids may perhaps be present, but lactic and tartaric acids are apparently not formed. The same enzyme, but weaker in action, was isolated from the leaves of the same plant. It is noteworthy that, contrary to what appears to be the case with other respiratory enzymes, alcohol and acetone do not destroy its action, so that there is little, if any, loss of activity on precipitation of the aqueous extracts with these solvents.

The Scientific American for December 9, 1911, is a special naval number containing many articles by chief officials connected with the United States Navy. Dealing with the question of ammunition, we note that Rear-Admiral N. C. Twining, Chief of the Bureau of Ordnance, states that nitro-cellulose smokeless powder continues to be the standard propellant. He claims for this powder that it is extremely satisfactory in stability, ballistic characteristics, and keeping qualities, and that there is no better smokeless powder in the world. The powder consists essentially of cotton dissolved in nitric acid, then dried, colloided, and pressed into the desired form of grain. When not unfavourably affected by climatic and other adverse conditions, the powders retain their qualities for from twelve to fifteen years. In case deterioration occurs, due to such conditions, ample warning is given by the physical appearance of the powder, so that no spontaneous explosion or combustion is ever to be apprehended; it is, in fact, extremely doubtful whether spontaneous combustion is possible, unless the powder should be subjected to abnormally high temperatures. Powder which has changed in character to such an extent as to reduce its ballistic value is now reworked and made over into new powder.

DEALING with failure of buildings caused by the drought of last summer, an article in *The Builder* for January 5 says that it is impossible to estimate the enormous damage to buildings throughout the country produced by such weather conditions as have been experienced. Suburban London has suffered to a remarkable degree. In many districts where the foundations rest upon clay buildings by the hundred have needed underpinning. Clay retains a considerable amount of water in its structure, and even at the height of an ordinary summer is found to be quite moist at a depth of from 2·5 to 3 feet from the surface. Last year, however, the moisture evaporated to a much greater depth, and the clay was often found to be perfectly dry at depths of 5 and 6 feet. The consequent shrinkage in bulk led to settlements in the buildings above. Again, clay when dry tends to fall to powder, and the early autumn rain, instead of percolating gradually through the soil, finds its way into the fissures and washes the powdered clay out of its place. Sliding or lateral movement is likely to occur where a part only of the soil is wet, the remaining parts being still quite dry. The stability of a structure depends not so much upon whether the clay is moist or dry as upon the condition, whichever it be, remaining unaltered. The consideration of the action of the weather upon the clay emphasises the importance of obtaining a depth of foundation sufficient to reach below the point affected by sun and rain, and, further, of carrying all foundations to a uniform depth. The writer of the article, in dealing with more than seventy cases of failure last autumn, found only two or three cases of fractures occurring where the foundations were at a uniform depth. The explanation is that uniform depth of foundation is more likely to secure even settlement of the structure.

THE presidential address to the Dumfriesshire and Galloway Natural History and Antiquarian Society, delivered by Mr. Hugh S. Gladstone on October 20 last, consisted of addenda and corrigenda to his volume "The Birds of Dumfriesshire," which was reviewed in these columns on January 19 of last year (vol. lxxxv., p. 378). The council of the Dumfries society has published the address in pamphlet form, and this will prove a valuable adjunct to Mr. Gladstone's book.

MESSRS. J. AND A. CHURCHILL announce the following works for early publication:—"Diseases of the Stomach," by Prof. C. D. Aaron; "Who's Who in Science, 1912," edited by H. H. Stephenson; "Annual Tables of Constants and Numerical Data," issued under the authority of the International Congress of Applied Chemistry. The tables are intended to contain all the numerical data likely to be of interest in connection with chemistry, physics, and allied sciences, pure and applied, to be found in the literature published during the previous year.